春

		,	
NCR:	Yes	1	No

WORK ORDER NON-CONFORMANCE / UPDATE

<i>1</i>	4.
- 19th	
DQA:XW \	Date: 12/00/03
c1	10

			·				QA Closed:	Or Dutc.	(0/11/01/	
Work Order: 80	876	: • • • • • • • • • • • • • • • • • • •	DISPOSITION			AGAINST DEF	PARTMENT/	PROCESS		
Part No. <u>D212</u> NCR No. <u>1</u>		TRN)	Rework Scrap Use-as-is Work Order Update	Therm	Machining noforming	Crosstube Small Fab Finishing Composite		Water Jet I. Eng. Coor. e/Packaging Supplier	Engineering Quality Other	
Root			otion of work order update	Initial	Action		Sign &			
Cause Date	Step Qt		or Non-conformance	Chief Eng	Descript	ion	Date	Verification	QC Inspector	
Doc/Data Equip/Tooling Operator	1 100 1	Coff 1	5 under tolerance. 740 - 2.732 (.008" under tol)	123	Acceptable		DAG (22)	JW 12-9-19	OAS,	
Material X			(.008" UNDL FOL)	12/9/19			12/9/19	12-9-19	16	
Other						•	į		12/09/26	
Process						·			(((0.1)	
Supplier			, i							
Training	ŧ l	ŕ				•				
Unapproved										
		······	F/	ULT CATE	GORY					
Landing Gear			General							
Bendin	g		Bend	Grain			Ovalized		Pressure/Forced	
Centre	Not Concentric 1	to O/S	BOM/Route	Hardwa	re		Over/Under	tolerance	Temperature/Cure	
Cracks			Broken/Damaged	inspect	ion Incomplete		Part Incorrec	t T	Weld	
Crushe	d/Crimped.	<u> </u>	Burrs	⊢	ions Incomplete/Unc	lear	Part Lost/Mis	ssing	Wrong Stock Pulled	
Cuffs	•		Contamination	Mainte	•		Part Moved	· _	- ,	
Heat To	eat		Countersink	Mislabe	eled		Positioned W	/rong		
Inspect	ion Strip in Tube	,	Cut Too Short	Misread	i		Power Loss/S		Other	
Ripples	in Bend		Drill Holes	Offset			Material .			
Torque	Waves in Extrus	sion	Drawing	Out of	Calibration		r al-c ar to poor v			
Turning	Sequence		Finish	Out of	Out of Sequence					
Wave/	wist in Tube		Folio	Outside	Outside Dimensions					

130

QC1- Inspect dimensions to dimension sheet

FOLIO REV:__

DWG REV: 3-Remove sand and plugs

0.00

QC

Memo

0.00

Quality Control

+ PERFORM ULTRA SONIC MEASUREMENT

*Do not use sandpaper coarser than 320 grit.

Page 2

										DQA:	Date:	
NCR: Y	es / No		,		WORK ORDER NON-C	CON	FORN	IANCE / UPI	DATE			
										QA Closed:	Date:	
Work Orde	nr:				DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
WOIK OIGE					Rework	1	Skid-tube Crosstube			1	Water let	Engineering
Part N	lo.				Scrap							Quality
					Use-as-is		Therm	oforming	re/Packaging	Other		
NCR N	lo		· · · · · · · · · · · · · · · · · · ·		Work Order Update]		Large Fab	Composite	Supplier		
Root		1		Descri	ption of work order update	In	itial	Act	ion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chi	ef Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling												
Operator		1							.			
Material												
Setup												
Other												
Process		1	ŀ		. The second of				•			
Supplier	_											
Training			·									
Unapproved		1	<u> </u>								<u> </u>	
	· · · · · · · · · · · · · · · · · · ·					AULT	CATE	ORY		····		-
Landii	ng Gear			Γ-	General	<u> </u>	<u>.</u> .			٦	_	٦_ ،
	Bending			_,_ -	Bend	\mathbf{H}	Grain		<u> </u>	Ovalized	_	Pressure/Forced
	Centre N	ot Conce	ntric to	^{O/S}	BOM/Route	\vdash	Hardwa		<u> </u>	Over/Under	 	Temperature/Cure
	Cracks Broken/Damaged					-	•	on incomplete		Part Incorre		Weld
	Crushed/Crimped. Burrs				\vdash	Instructions Incomplete/Unclear			Part Lost/M	· ·	Wrong Stock Pulled	
	Cuffs Contamination				\vdash	Maintenance			Part Moved			
	Heat Treat Countersink					Mislabeled			Positioned \	_	٦٠٠٠	
	Inspection Strip in Tube Cut Too Short					\vdash	—			Power Loss,	/Surge	Other
1	Ripples in Bend Drill				Drill Holes	1 19	Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Order ID 89876 Page 3 Wednesday, September 12, 2012 9:50:13 AM *N900040100* Item ID: D212-664-101TRN Accept Setup Start **Revision ID:** Item Name: Crosstube Turning Detail **Start Date:** 9/12/2012 Start Qty: 1.00 **Cust Item ID:** Required Date: 9/24/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Process Plan: _____ Date: **Tooling:** Approvals: Date: Stop Date: _____ SPC (Y/N): Date: Sequence ID/ Operation Tool ID Set Up/ Tool # Plan Accept Reject Reject Insp. Work Center ID Qty Qty Stamp Description **Run Hours** Code Number 140 QC8- Inspect parts - second check 0.00 *140* 12-9-19 0.00 QC Memo + CHECK ULTRA SONIC MEASUREMENT AND ORIENTATION FOR Quality Control **BENDING** 0.00 145 *145* 0.00 Crosstubes Memo GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY. Crosstubes

150

150 HandFXtube

Hand Finishing Crosstubes

Memo

1- PRESSURE WASH X-TUBE INSIDE AND OUT

2- ACID ETCH X-TUBE INSIDE AND OUT. USE RED SCOTCH BRITE

0.00

0.00

NCR: Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE													
		QA (Closed:											
Work Order:	DISPOSITION		AGAINST DEPARTMENT/PROCES											
	Rework	Skid-tube	Crosstube	Water J										
Part No.	Scrap	Machining	Small Fab	Prod. Eng. Cod										

Part No. NCR No.					Rework Scrap Use-as-is Work Order Update	Machining Small Thermoforming Finish		Crosstube Small Fab Finishing Composite	_	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root	,			Descri	ption of work order update	Initial	<i>P</i>	Action	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Er	Chief Eng Description		Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved											
						AULT CA	EGORY				
Landing	_			_	General	 1	•	F**	1	F	7
	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion Turning Sequence Wave/Twist in Tube		Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing Finish	Instru Mair Misla Misra Offse Out o	ware ction Incomplete actions Incomplet atenance beled aad	e/Unclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V Power Loss	issing Wrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other		

Date:

Date:

DQA:

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Order ID 89876 *89876* Page 4 Wednesday, September 12, 2012 9:50:13 AM Accept *N900040100* Item ID: D212-664-101TRN Setup Start **Revision ID:** Stop Crosstube Turning Detail Item Name: Start Qty: 1.00 **Start Date:** 9/12/2012 **Cust Item ID:** Required Date: 9/24/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Tooling: Process Pian: Date: Approvals: Date: Stop Date: _____ SPC (Y/N): QC: Date: Sequence ID/ Reject Operation Set Up/ Tool ID Tool # Plan Accept Reject Insp. Work Center ID Description Qty Qty Code Number Stamp **Run Hours** QC5- Inspect part completeness to step on W/O 0.00 160 *160* QC 0.00 Memo **Quality Control** 170 0.00 Packaging *170* 0.00 Packaging Memo Identify and Stock in kanban rack Packaging Location: LG

0.00

0.00

QC21- Final Inspection - Work Order Release

Memo

180

QC

120

Quality Control

ML5 12-09-27

									DQA:	Date:	
NCR: Ye	s / No				WORK ORDER NON-C	ONFOR	MANCE / UI	*	QA Closed:	Date:	
Work Order:	•	·			DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part No					Rework Scrap	Scrap Machining Small Fab Prod. Eng. Coor.					
NCR No). 				Use-as-is Work Order Update	Thermoforming Finishing Rec/Store/Packaging O Large Fab Composite Supplier					
Root				Descri	ption of work order update	Initial	А	ction	Sign &		
Cause	Date	Step	Qty	(or Non-conformance	Chief Eng	Des	scription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling											
Operator				}							
Material						· ·					•
Setup											
Other											
Process											
Supplier											
Training									ļ. 		
Unapproved											

Bending Bend Grain Ovalized Pressure/Forced BOM/Route Centre Not Concentric to O/S Hardware Over/Under tolerance Temperature/Cure Broken/Damaged Cracks Inspection Incomplete Part Incorrect Weld Crushed/Crimped. Instructions Incomplete/Unclear Burrs Part Lost/Missing Wrong Stock Pulled Cuffs Contamination Maintenance Part Moved Countersink Mislabeled Heat Treat Positioned Wrong Inspection Strip in Tube Misread Other Cut Too Short Power Loss/Surge Ripples in Bend Drill Holes Offset Torque Waves in Extrusion Drawing Out of Calibration Turning Sequence Finish Out of Sequence Wave/Twist in Tube Folio Outside Dimensions

FAULT CATEGORY

General

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Landing Gear

Picklist Print

Wednesday, September 12, 2012 9:50:17 AM

Work Order ID: 89876

89876

Parent Item:

D212-664-101TRN

D212-664-101TRN

Parent Item Name: Crosstube Turning Detail

Start Date: 9/12/2012

Required Date: 9/24/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:A 08-03-06 new issue DD verified by:ec

IPP Rev B 08.04.02 removed Polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6005-128		Manufactured	No			120	Each	37.0000	1	1			
D6005 11	00								**				

Crosstube Material

Location Loc Qty Loc Code LG 37 75628 37

KC 12-9-17

Page 1

										Programme (British Control of Con	DQA	Date:	~
NCR: Y	es	/ No					WORK ORDER NON-C	O	NFORM	MANCE / UPDATE			
										<u> </u>	QA Closed	Date:	
Work Orde	۲:						DISPOSITION			AGAINST DI	EPARTMEN1	/PROCESS	
Part No							Rework Scrap Use-as-is Work Order Update		Skid-tube Crosstube Small Fab Thermoforming Finishing Composite		Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier		Engineering Quality Other
Root			,		Des	crip	otion of work order update	ı	nitial	Action	Sign &		
Cause		Date	Step	Qty		C	or Non-conformance	Ch	ief Eng	Description	Date	Verification	QC'Inspector
oc/Data quip/Tooling Operator Material etup Other Process supplier Training Unapproved			, see			:			y y	ÚI)			
	•			·				AUL	T CATE	GORY			·
Landi	ng G	ear					General		•		_		
.c.	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion Turning Sequence				4.	Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing Finish		Instruct Mainte Mislabe Misread Offset Out of (ion Incomplete ions Incomplete/Unclear enance	Ovalized Over/Unde Part Incorre Part Lost/N Part Moved Positioned Power Loss	ect lissing Wrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
	Wave/Twist in Tube Folio					Folio 🦠 🧗		Outside	Dimensions				

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	89876
Description: Crosstube Assembly (205/212/412 High Fwd)	Part Number:	D212-664-141
Inspection Dwg: D212-664-141 Rev: D	afr	Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

	nspection Sheet awing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
	€ 0.200	+/-0.010	. 200	//		VERN	CNC-08.
	R0.063	+/-0.010	-063			R6	
	2.740	+0.005/-0.000	2.741	//		VERN	CNC-08
	5.097	+/-0.030	5,106	,			
	2.304	+0.005/-0.000	2.308	7,			
	2.340	+0.005/-0.000	2.343	//			
EA	2.398	+0.005/-0.000	2,403	7,			
SIDE	2.448	+0.005/-0.000 *	2.457	//			
	2.498	+0.005/-0.000	2,503				,
	₹ 2.549	+0.005/-0.000	2.554	//			
	2.599	+0.005/-0.000	2.603				. 🐠
	2.671	+0.005/-0.000	2.674	//		4	
	2.701	+0.005/-0.000	2.705			4	V
	0.200	+/-0.010	.200	//		VERN	CNC-08
	R0.063	+/-0.010	-063	//		R6	
	2.740	+0.005/-0.000	2.741			VEEN	CNC-08
	5.097	+/-0.030	5.402.				
	2.304	+0.005/-0.000	2.308	. /		1	1
<u>m</u>	2.340	+0.005/-0.000	2,343				
	2.398	+0.005/-0.000	2.403				
SIDE	2.448	+0.005/-0.000	2.453				
	2.498	+0.005/-0.000	2,503	//			14.
1	2.549	+0.005/-0.000	2.554				
	2.599	+0.005/-0.000	2.603				
	2.671	+0.005/-0.000	2.674			J	1
	2.701	+0.005/-0.000	2.704	//		V	V
	126.514	+/-0.020	126.510			PAPE	LC-22

							ا العالمية ا	, - , .			DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UP	PDATE	QA Closed:	Date:	
Vork Ord	er:					DISPOSITION				AGAINST D	EPARTMENT	/PROCESS	
Part No						Rework Scrap Use-as-is Work Order Update		Skid-tube Crosstu Machining Small F Thermoforming Finishi Large Fab Compos			Pro Rec/Sto	Engineering Quality Other	
Root Cause		Date	Step	Qty	Des	otion of work order update or Non-conformance	1	Initial iief Eng		ction cription	Sign & Date	Verification	QC Inspector
oc/Data uip/Tooling perator laterial etup ther rocess upplier raining napproved			-					5					
						F	AUI	T CATE	GORY	<u> </u>			
Land	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion				General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		Instruct Mainte Mislabe Misread Offset	on Incomplete ions Incomplete enance	/Unclear ,	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V Power Loss/	ct issing Wrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
	\vdash	Turning S				 Finish	\vdash	-1	Sequence				

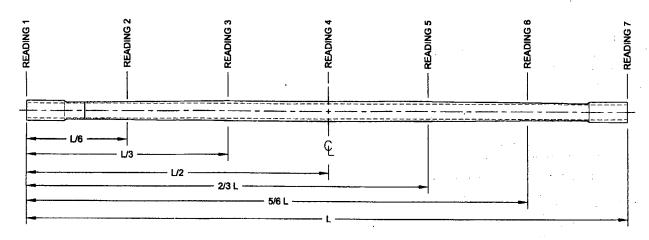
Outside Dimensions

Wave/Twist in Tube

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	89816
Description: Crosstube Assembly (205/212/412 High Fwd)	Part Number:	D212-664-141
Inspection Dwg: D212-664-141 Rev: D		Page 2 of 2

WALL THICKNESS MEASUREMENT



	WALL	THICKNESS I	NT (IN)	Deviation		
Location	w1	w2	w3	w4	Δw (max-min)	TOLERANCE
READING 1 L= 0"	.368	-389	.397	1382	.029	
READING 2 L= 15	,206	.2/6	.217	.715	10/1	
READING 3 L= 20	.282	.289	.299	297	,017	
READING 4	.376	.387	,396	-386	026	0.048"
READING 5	298	,296	-284	. 296	014	
READING 6	,211	.267	211	.217	-010	
READING 7	.374	.389	-387	.373	.016	

Calibration Result

Actual Block Thickness: 100 - 500

Sitescan 250 Measured Thickness: 100-.500

Measured by:	It front	Audited by:	Preliminary Approval:	
Date:	129-17	Date: 12-9-19	Date:	:

Rev	Date	Change	Revised by	Approved
Α	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	
В	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	
С	07.05.28	Dwg Rev updated	KJ/JLM	
D	10.02.02	Dimension 126.514 was 126.51	KJ , A	
E	12.06.04	Wall thickness form added	KJ 📯	<u> </u>

								DQA:	Date	: <u></u>		
NCR: Yes / No			WORK ORDER NON-C	100	NFORM	AANCE / UPDATE		•				
								QA Closed:	Date	:		
Work Order:			DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Work Order.			Rework		Skid-tube Crosstub	ے	,	Water Jet	Engineering			
Part No.			Scrap Machining Small Fab			\vdash	Pro	d. Eng. Coor.	Quality			
			Use-as-is Thermoforming Finishing			<u> </u>		e/Packaging	Other			
NCR No.			Work Order Update	1		Large Fab Composit	~		Supplier	1		
			· L	_		- <u> </u>						
Root		Descri	ption of work order update		Initial	Action		Sign &				
Cause Date	Step Qty		or Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Inspector		
Doc/Data												
Equip/Tooling												
Operator			•			•						
Material												
Setup												
Other												
Process			•									
Supplier		1		l					•	·		
Training				1						·		
Unapproved		<u> </u>		<u> </u>				<u> </u>				
. " .				AUL	T CATE	GORY						
Landing Gear		_	General]		_	Ovalized	Г	Pressure/Forced		
Bending	-+	- 0/s	Bend BOM/Bouto	<u> </u>	Grain		-	4	talaranaa	Temperature/Cure		
Cracks	ot Concentric to	,0/3 -	BOM/Route Broken/Damaged	\vdash	Hardwa		-	Over/Under Part Incorre	-	Weld		
Crushed	Crimned	<u> </u>	Burrs	-	Inspection Incomplete		\vdash	Part Lost/M	 -	Wrong Stock Pulled		
Cuffs	cimpeu.		Junia	<u> </u>	Instructions Incomplete/Unclear Maintenance			Li air road in	331115	TANIONE STOCK I WILL		

Mislabeled

Out of Calibration
Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

Drill Holes

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Item	Qty -141	Qty -141B	Part Number	Description
1	Х		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		Х	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

D

1) MATERIAL: MANUFACTURED FROM D6005-128

FINISHED LENGTH = 126.514±0.020

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2

- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS
- WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664) D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

89814 1209-12

REMOVED FROM UNDER REVIEW PER UNDER REVIEW BONH 11-614

DEO ATTACHED

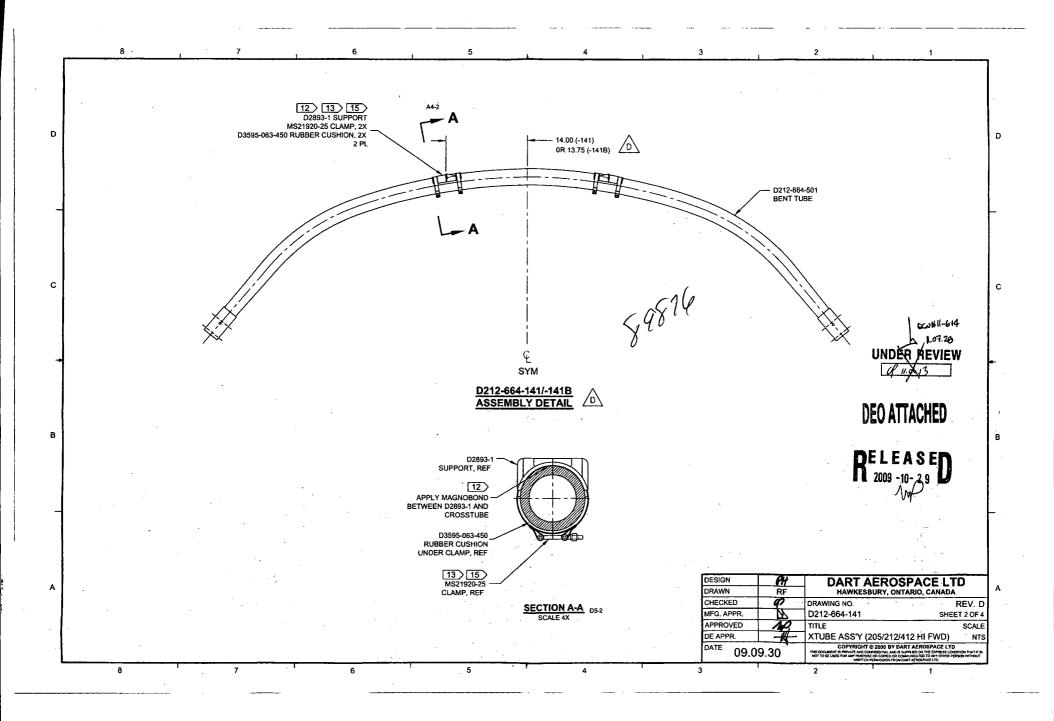
D .	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD. 141B (ZN 84-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN 84-3, C8-3, C8-3 & 86-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4										
С			SION STRIP; ADD MAGNOBOND ERSE CLAMPS	PH	07.03.08						
В.	ADD H		MPATABILITY WITH BHT/AA	PH	05.02.04						
Α	NEW IS	SSUE	PH	00.12.12							
REV.			ESCRIPTION	BY	DATE						
DESIGN		PH	DART AEROSPA	ACE	LTD						

DESIGN	PH	DART AEROSPAC	E LTD						
DRAWN .	RF	HAWKESBURY, ONTARIO, CANADA							
CHECKED	P	DRAWING NO.	REV. D						
MFG, APPR.	N	D212-664-141	SHEET 1 OF 4						
APPROVED	10	TITLE	SCALE						
DE APPR.		XTUBE ASS'Y (205/212/412 HI F	WD) NTS						
DATE 09.0	9.30	COPYRIGHT © 2000 BY DART AEROSP THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE	ACE LTD EXPRESS CONDITION THAT IT IS						

			DQA
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE	
			0 1 01 1

	·								QA Closed:	Date	<u>; </u>
Work Order	··				DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	·
Work Order	·				Rework	1	Skid-tube	Crosstube	7	Water Jet	Engineering
Part No	n				Scrap		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
101111	o		······································		Use-as-is	4 5	moforming	Finishing	4	re/Packaging	Other
NCR No	0.				Work Order Update	1 1	Large Fab	Composite	1	Supplier	
						' <u> </u>					
Root				Descri	ption of work order update	Initial	,	Action	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	De	scription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling		}						•			
Operator							1				
Material											
Setup											
Other							1				
Process											
Supplier								•			
Training			1							·	
Unapproved						•					
					F	AULT CATI	GORY	· .			
Landin	g Gear				General				~	-	_
Ĺ	Bending				Bend	Grain			Ovalized		Pressure/Forced
	Centre No	ot Conce	ntric to	o/s	BOM/Route	Hardw	are		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged	Inspec	tion Incomplete		Part Incorre	ct	Weld
	Crushed/	Crimped	· ·		Burrs	Instruc	tions Incomplet	te/Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs				Contamination	Maint	enance		Part Moved		
	Heat Trea	at			Countersink	Mislab	eled		Positioned \	Wrong _	
	Inspection	n Strip in	Tube		Cut Too Short	Misrea	ad		Power Loss/	/Surge	Other
	Ripples in	Bend			Drill Holes	Offset					
. [Torque W	/aves in l	xtrusio	n	Drawing	Out of	Calibration				
	Turning S	equence			Finish	Out of	Sequence				
Г	Waye/Tw	ist in Tul	20		Folio Outside Dimensions						

Date:

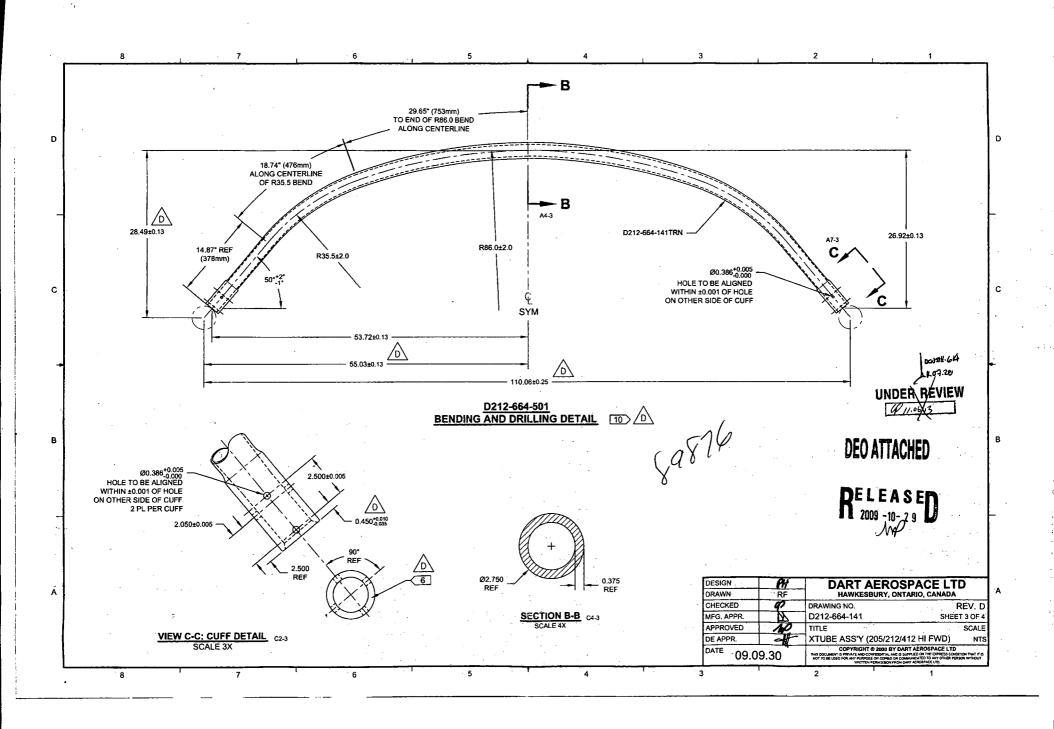


									,		DQA:	Date	:		
NCR: Y	es	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UPDATE		- QA Closed:	Date			
			<u></u>	7-817		DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Nork Orde	r: _				_		_								
Part N NCR N	•			·		Rework Scrap Use-as-is Work Order Update	Thern	Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Large Fab Composite		Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier		Engineering Quality Other			
	•				_	_				-			<u></u>		
Root				De	escri	ption of work order update		nitial	Action		Sign &				
Cause		Date	Date Step Qty or Non-conformance				Ch	ief Eng	Description		Date	Verification	QC Inspector		
oc/Data quip/Tooling perator Material etup other rocess upplier raining		,													
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Landir	- -7					General		٦			1	-	- 7		
		Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend				Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		Grain Hardware Inspection Incomplete Instructions Incomplete/Unclear Maintenance Mislabeled Misread Offset			Ovalized Over/Under tolerance Part Incorrect Part Lost/Missing Part Moved Positioned Wrong Power Loss/Surge		Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other		
	_	Torque W	aves in E	extrusion	\vdash	Drawing	\perp	Out of (Calibration						
	1	Turning Se	equence		ļ	Finish Out of Sequence									

Outside Dimensions

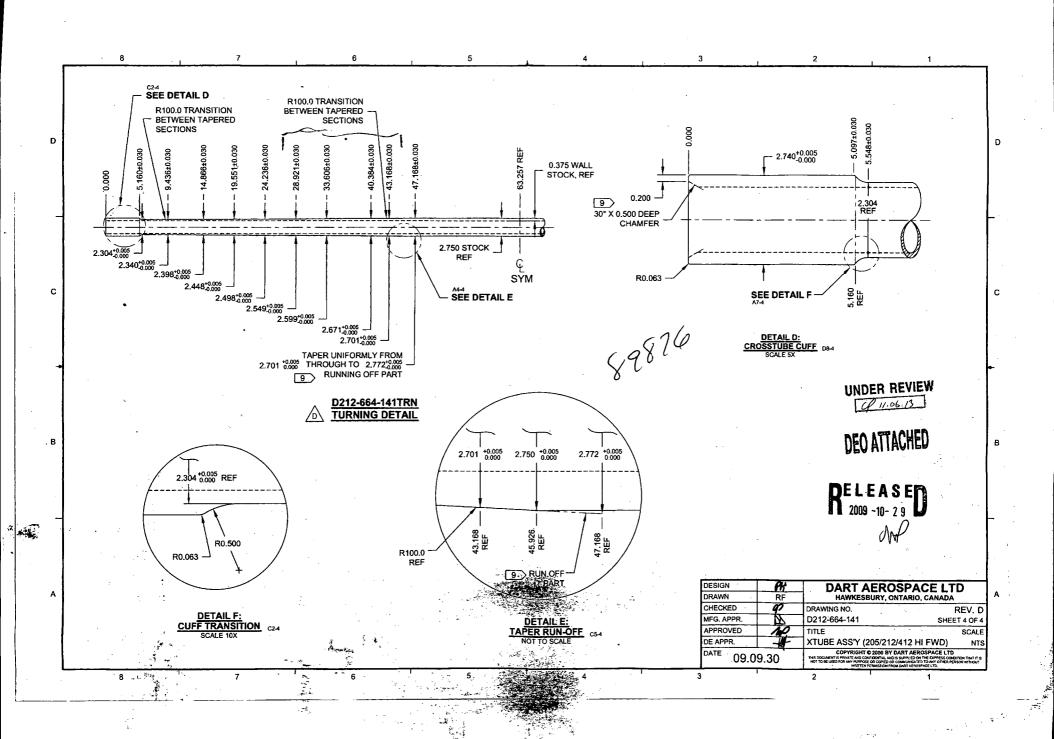
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Wave/Twist in Tube



												DQA:	Date	e:	
NCR: Y	'es	/ No					WORK ORDER NON-C	NFORM	•	•					
							•					QA Closed:	Date	j:	
Manula Onda							DISPOSITION			AGAINS	ST DE	PARTMENT/	PROCESS		
Nork Orde	er: -						Rework	1		Skid-tube Crosstul	20]	Water Jet	٦ _{En}	gineering
Dart N	Jo						Scrap		Machining Small Fa		Prod. Eng. Coor.			Quality	
raici	Part No.						Use-as-is			noforming Finishin	<u> </u>	4	e/Packaging	┪	Other
NCR N	lo.				-	-	Work Order Update			Large Fab Composi	~ -	,	Supplier	7	
	-						· L	•							
Root					Desc		otion of work order update	1	nitial	Action		Sign &			
Cause		Date Step Qty		C	or Non-conformance	Ch	ief Eng	Description		Date	Verification	<u> </u>	QC Inspector		
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Landi	ng G	iear		·····			General					_			å.
		Bending					Bend		Grain			Ovalized		Pres	sure/Forced
		Centre No	ot Concer	ntric to	o/s		BOM/Route		Hardwa	re		Over/Under	tolerance	Tem	perature/Cure
		Cracks					Broken/Damaged		Inspecti	ion Incomplete		Part Incorred	ct [Wel	d ·
		Crushed/0	Crimped.		Į		Burrs	L	Instruct	ions Incomplete/Unclear	L	Part Lost/Mi	issing	Wro	ing Stock Pulled
		Cuffs			[Contamination	L	Mainte	enance		Part Moved			
		Heat Trea	it		1		Countersink		Mislabe	eled		Positioned V	Vrong		
		Inspection Strip in Tube			L		Cut Too Short	L	Misread	t d	L	Power Loss/	Surge	Oth	er
		Ripples in Bend					Drill Holes		Offset `						
		Torque W	aves in E	xtrusio	ո [Drawing		Out of	Calibration					
		Turning S	equence		[Finish	_	Out of	eguence			~		
		Wave/Tw	ist in Tub	oe e			Folio	13	Outside	Dimensions					

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1 /20 and 3 .

												DQA:	Date	ə: _		
NCR:	⁄es	/ No					WORK ORDER NON-C	10:	VFOR	MANCE / UPDATE		·		_		
											QA	Closed:	Date	<u>;</u>		
Nork Ord	er:						DISPOSITION		AGAINST DEPARTMENT/PROCESS							
							Rework Scrap			Skid-tube Crosstube Machining Small Fab	\exists	Water Jet Prod. Eng. Coor.			Engineering Quality	
Part f	NO.					- 1	Use-as-is			noforming Finishing	⊢			\dashv	Other	
NCR I	No.						Work Order Update		mem	Large Fab Composite		Nec/3to	Supplier		Other	
Root					Desc	crip	tion of work order update		nitial	Action	S	ign &		T		
Cause		Date	Step	Qty		0	r Non-conformance	Ch	ief Eng	Description		Date	Verification		QC Inspector	
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napproved	L															
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Landi	ng (Sear					General		,				-	_		
		Bending					Bend		Grain			alized	L	_	Pressure/Forced	
		Centre No	ot Concer	ntric to (D/S		BOM/Route	<u></u>	Hardwa	are	Ov	er/Under	tolerance		Temperature/Cure	
		Cracks Broken/Damaged					Broken/Damaged	L	Inspect	ion Incomplete	Pai	t Incorre	ct		Weld	
	Crushed/Crimped.						Burrs		Instruct	tions Incomplete/Unclear	Pai	t Lost/M	issing	╝	Wrong Stock Pulled	
	Cuffs						Contamination		Mainte	enance	Pai	t Moved				
	Heat Treat						Countersink	<u></u>	Mislabe	eled	Po	sitioned \	Vrong			
	Inspection Strip in Tube					Cut Too Short		Misrea	d ·	Power Loss/Surge			Other			
		Ripples in	Bend				Drill Holes		Offset							
	L	Torque W	aves in E	xtrusion	۱ ا		Drawing	L	Out of	Calibration						
	Turning Sequence						Finish		Out of	Sequence						

Outside Dimensions

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Wave/Twist in Tube

DRAWING NO.	TITLE	REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-141	XTUBE ASSY (2	05/212/412 HI FWD)	ENGINEERING ORDER	D212-664-141-D-1	SHEET 1 OF 2	NTS
DRAWN	CHE	CKED IP	MFG. APPR. &	APPROVED AMP,	DE APPR.	
DATE 11.04	1.07 DATE	E 1), (4), ()	DATE ((.04.(2	DATE 11/04/12	DATE 11.04.17	_

PURPOSE:

ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

CHANGE:

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

<u> 15:</u>

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND

PAINT OUTSIDE PER DART QSI 005 4.2 REMOVE MASKING AND APPLY CLEAR COAT

WAS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2

DELEASED 2011 -04- 18

UNDER REVIEW

12 11-614

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NCR:	⁄es	/ No				WORK ORDER NON-O	100	NFORM	MANCE / UPI	DATE	QA Closed:	Date	:
Work Orde	er: ˌ					DISPOSITION	1			AGAINST DE	PARTMENT		- · · · ·
Part I	•					Rework Scrap Use-as-is		Thern	Skid-tube Machining noforming	Crosstube Small Fab Finishing	-4	Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other
NCR No.						Work Order Update] [Large Fab	Composite		Supplier	
Root						ption of work order update	1	nitial	Act		Sign &		
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Descr	iption	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													
Operator													
Material													
Setup													
Other													
Process	\vdash												
Supplier Training	\vdash						1						
Unapproved													
		L		<u></u>		F	AUL	T CATE	GORY			↓	<u> </u>
Landi	ng (Gear				General							
	_	Bending			Γ	Bend		Grain			Ovalized		Pressure/Forced
		Centre No	ot Concei	ntric to	o/s	BOM/Route		Hardwa	re .	-	Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged		Inspecti	ion Incomplete		Part Incorre	ct	Weld
		Crushed/Crimped				Burrs		Instruct	ions Incomplete/L	Inclear .	Part Lost/Mi	issing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte	enance		Part Moved	_	 .
		Heat Trea	it			Countersink		Mislabe	eled		Positioned V	Vrong	
		Inspection	n Strip in	Tube		Cut Too Short		Misread	t		Power Loss/	Surge	Other
		Ripples in	Bend			Drill Holes		Offset					
	Torque Waves in Extrusion			Extrusio	n 🗌	Drawing	Out of Calibration						

Out of Sequence

Outside Dimensions

DQA:

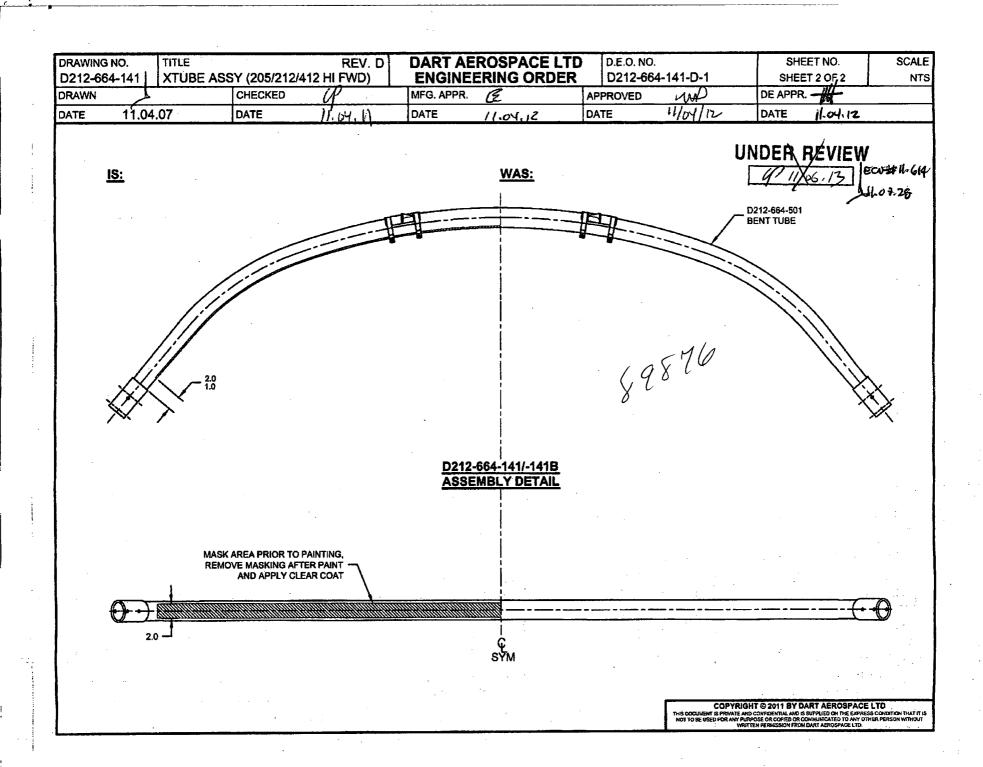
Date:

Turning Sequence

Wave/Twist in Tube

Finish

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NCR:	Yes	/	No

NCR:	/es	/ No					WORK ORDER NON-C	O	NFORM	//ANCE / UPI	DATE		•		
		,								<u>, </u>		QA Closed:	Date:	,	
Nork Ord	er:						DISPOSITION				AGAINST DE	PARTMENT	PROCESS		
Part !	۷o.						Rework Scrap			Skid-tube Machining	Crosstube Small Fab	-1	Water Jet d. Eng. Coor.	Engineering Quality	
NCR 1	No.										Finishing Composite	Rec/Stor	e/Packaging Supplier	Other	
Root					Descr	ript	ption of work order update			Act	tion	Sign &			
Cause		Date	Step	Qty		or	Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector	
oc/Data															
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raining		-		'								1			
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Landi	ng (Gear					General		_			_		_	
		Bending				E	Bend		Grain			Ovalized		Pressure/Forced	
		Centre No	ot Concei	ntric to	o/s		BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure	
		Cracks]E	Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct	Weld	
		Crushed/0	Crimped.			E	Burrs		instruct	ions Incomplete/	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled	
		Cuffs					Contamination		Maintenance			Part Moved		_	
		Heat Trea	it				Countersink		Mislabe	eled		Positioned V	Vrong		
	Г	Inspection	n Strip in	Tube	Γ	_]c	Cut Too Short		Misread	t		Power Loss/	Surge	Other	
		Ripples in	Bend				Orill Holes		Offset		_	_			
	Г	Torque W	aves in E	xtrusio	n [7	Drawing		Out of (Calibration					
		Turning So	equence		Γ	F	inish	Out of Sequence							
	Wave/Twist in Tube Folio				Outside Dimensions										

DQA: _____ Date: ___

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DRAWING NO.	TITLE REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-141	CROSSTUBE ASS'Y (205 HI FWD)	ENGINEERING ORDER	D212-664-141-D-2	SHEET 1 OF 1	NTS
DRAWN /	CHECKED A>S	MFG. APPR	APPROVED AND	DE APPR.	
DATE 11.07	.15 DATE 11.07.20	DATE 11.07.21	DATE 11/07/21	DATE 11.07.2	1.

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

is:

item	Qty -141	Qty -141B	Part Number	Description
7	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

b				`	
ı					
ı	7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
ı	•				ADULEDNE TENTOONIET LODEO COO OAT 400
ı			•	'	ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,
ł			į.		TYPE II. CLASS 2 ADHESIVE)
Ł		Ĺ			TITE II, OLAGO Z ADTICOTVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2893-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04° TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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DQA: Date:

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

	, ,,,							. – ,		QA Closed:	Date	:
Work Orde	r·				DISPOSITION				AGAINST DE	PARTMENT,	PROCESS	
Part N					Rework Scrap		ľ	Skid-tube Machining	Crosstube Small Fab		Water Jet d. Eng. Coor.	Engineering Quality
NCR N	0				Use-as-is Work Order Update	_		noforming Large Fab	Finishing Composite	Rec/Stor	e/Packaging Supplier	Other
Root				Descr	iption of work order update	In	Initial Action			Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chi	ef Eng	Des	cription	Date	Verification	QC Inspector
Ooc/Data Equip/Tooling Operator Waterial Setup Other Process Supplier Training												
Jnapproved		<u> </u>	<u>. </u>			FALH 1	r cate	GORY		!		
Landin	g Gear				General	701	CATE	30,11		<u> </u>		
	Bending Centre Not Concentric to O/S Cracks Bend BOM/Route Broken/Damaged				Bend BOM/Route Broken/Damaged		Grain Hardware Inspection Incomplete			Ovalized Over/Under tolerance Part Incorrect		Pressure/Forced Temperature/Cure Weld
	Crushed/Crimped. Burrs				-	-		ions Incomplete	/Unclear	Part Lost/Mi	issing	Wrong Stock Pulled
-					Contamination	—	Mainte	•	<u> </u>	Part Moved		
-	Heat Treat Countersink					Mislabe		<u> </u>	Positioned V			
-	Inspection Strip in Tube Cut Too Short				-	Misread	1	L	Power Loss/	Surge [Other	
-	Ripples in Bend Drill Holes Torque Waves in Extrusion Drawing				\vdash	Offset	*=1:ba:					
-				n -	Drawing	-		Calibration				
ŀ	Turning S	•		-	Finish	-	Out of Sequence			 		
	Wave/Tw	nst in Tul	oe -		Folio	1 1	Outside	Dimensions				

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۱,	DRAWING NO.	ŢITLE	REV. D	DART AE	ROSPACE LTD	D.E.O. N	0.	SHEET NO.	SCALE
	D2 12-664-141	XTUBE ASSY	(205/212/412 HI FWD)	ENGINE	ERING ORDER	D212-6	64-141-D-3	SHEET 1 OF 1	NTS
	DRAWN AJS	CI	HECKED P	MFG. APPR.	140	APPROVED	140	DE APPR.	
ſ	DATE 12.06.	28 D/	ATE 12.07.05	DATE	12.07.05	DATE	12.07.05	DATE 12.67.	.05

PURPOSE:

ADD NEW CONFIGURATION WITH ANODIZED FINISH

ADD -141F CONFIGURATION TO PARTS LIST AS SHOWN BELOW:

ltem	Qty -141	Qty -141B	Qty -141F	Part Number	Description
1	х			D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		Х		D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
			Х	D212-664-141F	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD) (ANODIZED)
3	1	1 1	1	D6005-128	CROSSTUBE
4	2	2	2	D2893-1	SUPPORT
5	4	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

*NOTE ITEM 7 HAS BEEN UPDATED IN ACCORDANCE WITH DEO D212-664-141-D-2

AMEND NOTE 2 AS FOLLOWS:

IS:

2) FINISH -141 & -141B ONLY; a) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

b) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

c) MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1

d) PAINT OUTSIDE PER DART QSI 005 4.2

e) REMOVE MASKING AND APPLY MATTE CLEAR COAT

FINISH -141F: a) ANODIZE PER MIL-A-8625. TYPE II. CLASS 1.

b) ALODINE (DO NOT ETCH) PER QSI 005 4.1.2

c) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

d) MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1

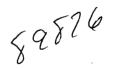
e) PAINT OUTSIDE PER DART QSI 005 4.2

f) REMOVE MASKING AND APPLY MATTE CLEAR COAT

*NOTE: BETWEEN FINISHING OPERATIONS EXTREME CARE MUST BE TAKEN NOT TO CONTAMINATE OR DAMAGE FINISHED SURACES.

WAS: (UPDATED PER DEO D212-664-141-D-1)

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1
PAINT OUTSIDE PER DART QSI 005 4.2
REMOVE MASKING AND APPLY CLEAR COAT





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	DQA Date														
NCR:	Yes	/ No					WORK ORDER NON-C	O	VFORM	MANCE / UPI	DATE	OA Classed	Data		
						_						QA Closed:	Date:		
Vork Ord	er.					ı	DISPOSITION		AGAINST DEPARTMENT/PROCESS						
VOIR OIG	٠						Rework	1		Skid-tube	Crosstube	1	Water Jet	Engineering	
Part 1	No						Scrap			Machining Small Fab			d. Eng. Coor.	Quality	
raic	10.						Use-as-is	1	Thermoforming Finishing			4	e/Packaging	Other	
NCR	Nο						Work Order Update	1		Large Fab	Composite	11.00,3101	Supplier	1 1	
								J		8			2 21/2/2 11 2 1	.	
Root					Des	crip	tion of work order update	Π	nitial	Act	ion	Sign &			
Cause		Date	Step	Qty		O	r Non-conformance	Ch	ief Eng	Desci	ription	Date	Verification	QC Inspector	
oc/Data															
uip/Tooling															
perator			-							·	•				
laterial															
etup															
ther										·					
rocess			٠.			,									
upplier				·	1 .										
raining						`									
napproved										1					
	΄.						F	AUL	T CATE	GORY					
Land	ing (Gear					General					_	_	_	
		Bending					Bend		Grain			Ovalized		Pressure/Forced	
		Centre No	ot Concer	ntric to	O/S		BOM/Route		Hardwa	are		Over/Under	tolerance	Temperature/Cure	
		Cracks					Broken/Damaged		Inspect	ion Incomplete		Part Incorred	ct	Weld	
		Crushed/0	Crimped.				Burrs		Instruct	tions Incomplete/I	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled	
		Cuffs Contamination					Mainte	enance		Part Moved					
		Heat Treat Countersink						Mislabe	eled		Positioned V	Vrong	_		
		Inspection Strip in Tube Cut Too Short						Misread	d		Power Loss/	Surge	Other		
		Ripples in Bend Drill Holes					Offset								
	L	Torque W	aves in E	xtrusio	n		Drawing	Out of Calibration							
	Turning Sequence Finish						Finish	Out of Sequence							
	Wave/Twist in Tube Folio						Folio		Outside Dimensions						

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